

ABSTRACT OF THE DISCLOSURE

A lensless optical servo system has an unfocused light source and patterned photodetectors. The unfocused light is reflected by markings on a rotating disk and the reflected light carries the pattern of the markings to the photodetectors. The convolution of this light pattern and a mating geometric pattern on the photodetectors causes the photodetectors to generate signals representing the position of the track on the disk. In one embodiment, a laser diode and three detectors are formed on the same silicon substrate. Sinusoidal metalization is applied to the detectors in the radial direction. The period of the sinusoidal metalization is two times the tracking pitch of the disk. The metalization on the first detector is approximately ninety degrees behind the metalization on the second detector and the metalization on the third detector is approximately ninety degrees ahead of the metalization on the second detector.